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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,630	09/25/2003	Robert M. Jennings	58385US002	6715
32692	7590	11/29/2004	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			DUPUIS, DEREK L	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	
			2883	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/670,630	Applicant(s) JENNINGS ET AL.	
	Examiner Derek L Dupuis	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 11-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/25/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-10, drawn to an optical fiber comprising a lens, classified in class 385, subclass 33.
 - II. Claims 11-30, drawn to a method for forming a microlens on an optical fiber, classified in class 385, subclass 33.
2. The inventions are distinct, each from the other because of the following reasons:
3. Inventions of Group II and Group I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the lensed optical fiber can be made by many other methods such as cleaving the optical fiber to a square edge and then etching the end of the fiber to form a rounded lens or heating the optical fiber and pulling its ends so as to form a narrow waist and then cleaving the fiber at its waist to form a long substantially conically tapered lens.
4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
5. During a telephone conversation with Greg H. Rosenblatt (Reg. No. 45,056) on 11/10/2004 at 4:30pm a provisional election was made without traverse to prosecute the invention of Group I, claims 1-10. Affirmation of this election must be made by applicant in

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replying to this Office action. Claims 11-30 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 recites the limitation "the radius of curvature in the first direction" in lines 4 and 5 of the claim. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 2 recites the limitation "the lens shape" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 6 recites the limitation "the bending stiffness" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 7 recites the limitation "the abrasion resistance" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by *Wolak et al. (US 2003/0165291 A1)*.

15. Wolak teaches an optical fiber as shown in figures 4A, 4B, and 4C comprising an integrally formed lens on the end of the optical fiber. The lens has a finite maximum radius of curvature in a first direction (shown in the profile in figure 4B) and a finite radius of curvature in a second direction (shown in the profile in figure 4A). The first and second directions are different and the directions are orthogonal to one another (as shown in figure 4C). The second direction is non-orthogonal to a longitudinal axis of the optical fiber as shown in figure 4A by the angle θ . The lens also has the shape of an oblate spheroid and has a continuous curvature and is devoid of discontinuous surfaces as can be seen from the profile curves shown in figures 4A and 4B.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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17. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Wolak et al.* (*US 2003/0165291 A1*) as applied to claim 1 above, and further in view of *Kusano et al.* (*US 2002/0154413 A1*).

18. Wolak teaches an optical fiber as discussed above in reference to claim 1. Wolak does not teach that a transverse cross-section of the optical fiber has an anisotropic physical property. Kusano teaches a lensed optical fiber shown in figures 1-4 with a transverse cross-section of the optical fiber having an anisotropic physical property. Kusano teaches two doped stress-applied regions (4a and 4b) embedded within the cladding (3) of the optical fiber. It would have been obvious to one of ordinary skill in the art at the time of invention to use the doped stress-applied regions taught by Kusano in the optical fiber taught by Wolak to create an optical fiber with a transverse cross-section with an anisotropic physical property. Motivation to do this would be that the stress-applied regions would result in a single uniaxial stress in a direction perpendicular to the longitudinal axis so as to make the fiber more stable (see paragraphs 7 and 29-32 of Kusano).


19. Kusano also teaches that the stress-applied regions have a lower mechanical strength than the core and cladding of the fiber (see paragraph 32 of Kusano). This results in a cross-section that has anisotropic bending stiffness and abrasion resistance among other physical properties. Kusano also teaches that the fiber is a lensed polarization maintaining fiber (see paragraph 30). The optical fiber taught by Kusano, is by definition also a polarizing fiber. Also, all optical fibers have cross-sections that are non-circular due to manufacturing defects, stresses, and strains.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Derek L. Dupuis
Examiner
Group Art Unit 2883



Frank G. Font
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